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Intermediaries and the governance of socio-technical networks in transition

Timothy Moss

Abstract

This paper makes the case for studying intermediary organisations as a window on the shifting governance of water and energy services in Europe today. It explores the notion of intermediaries and intermediation in a wide range of literatures and demonstrates how the governance concept can provide focus to the term, indicating how intermediaries can influence the pursuit of collective goals under shifting governance structures and processes. Against this conceptual backdrop the paper sets out the key governance challenges emerging from the ongoing transformation of socio-technical systems (addressing water and energy services) in terms of changing relations between the state and the utility, between service provider and user, between infrastructure and urban systems and between infrastructure and the environment. It subsequently provides empirical illustration of the emergence of

intermediaries in the water sector across Europe, the relational nature of their work, the interests they pursue and the impacts they are having.

1. Introduction

The ways in which essential services for water and energy are supplied – and used – have been undergoing radical change in Europe since the mid-1980s. Core components of this ongoing transformation process are the restructuring of utility markets, the reconfiguration of regulation, changes to consumption patterns and the advent of viable alternative technologies (e.g. Guy et al, 2001; Graham and Marvin, 2001; Coutard et al, 2005). All these dimensions of change to infrastructure systems have far-reaching implications for their governance. As the markets for utility services become more competitive, new actors emerge, services become more varied and consumers play an increasingly active role, the issue of how to govern socio-technical networks so as to secure and maximise the multiple benefits they provide is proving highly challenging. This challenge is all the more pertinent given the key role which infrastructure systems, such as for water and energy, play in pursuing EU and national policy goals to secure the supply of essential services at affordable prices, to minimise their impact on the environment, to protect the climate and to act as a vehicle for technological innovation.

Insofar as governance issues are explicitly referred to in the increasingly rich literature on infrastructures in transition, the focus is generally on the reordering of power relations between the triad of service providers, users and regulators. Studies of liberalisation and privatisation have plotted shifts in the relative influence of state agencies and utility companies or in the relationship between the provider and the consumer (Newbery, 1999; Finger and Allouche, 2002). Research on technological innovation in infrastructure systems

has explored how state-led regulatory or financial incentives can promote the uptake of new technologies by both infrastructure providers and users (Jamison and Rohracher, 2002). Work on changing consumption patterns has also focussed on the utility-user interface in highlighting shifts in actor roles and relations (Southerton et al. 2004; Summerton, 2004; Wissen and Naumann, 2006).

Very little attention has been paid as yet to the roles of other actors of infrastructure governance who do not fit neatly into one of these three categories of provider, user or regulator. This is surprising given that one of the distinctive – and widely acknowledged – features of the current transformation of infrastructure systems is that it has brought forth a range of new actors performing new tasks. As markets open up, services diversify and alternative technologies gain credence, specialists are emerging to perform a wide range of functions not previously required, or recognised. Many of these actors are working in-between the service providers, users and regulators, often with the capacity to re-order relationships between these groups. Examples range from business consultants or research organisations ‘translating’ novel environmental regulations into practice to non-profit agencies brokering new forms of market regulation, from information campaigns encouraging greater resource efficiency to innovation networks improving communication flows between technology providers and users. Common to all these actors is the intermediary nature of the work they do. Whether facilitating dialogue, providing guidance, bridging gaps, advocating reform or pioneering novel forms of interaction, their arenas of action are defined by their ‘in-betweenness’, cutting across the provider-user-regulator triad.

We argue that these intermediaries and the often hidden work which they perform are highly significant for the shifting governance of today’s urban infrastructure systems. Firstly, they are, by virtue of their existence and action, indicative of a broadening and diversification of the social organisation of these systems. They act as window on this transformation process.

Secondly, they possess the ability to work across the often impermeable boundaries between different actor groups, arenas of action or geographical scales which have characterised the governance of these infrastructure systems in the past. For this reason they are, thirdly, potentially valuable actors for advancing EU and national policy objectives for greater stakeholder participation, cross-sectoral coordination and service innovation in the fields of water and energy management.

The purpose of this paper is, on the basis of these initial assumptions, to critically appraise the way intermediaries work and the impact they are having on the governance of water and energy services in Europe today. Four questions guide the research. Firstly, in what governance contexts do intermediaries emerge? Secondly, what is the relational nature of their work? Thirdly, what – and whose – interests do they promote? Fourthly, what impacts do they have on the governance of socio-technical networks?

The paper begins by exploring different meanings of the term ‘intermediary’ in a wide range of literatures, justifying the interpretation selected for our study. The subsequent section demonstrates how the governance concept can be used to provide guidance for understanding the political dimensions to intermediary work. We then identify the core challenges to the governance of socio-technical networks in Europe today – as deduced from the rich literature on infrastructures in transition – and relate these to the emergence of intermediaries. Here, we argue that the ongoing transformation of socio-technical networks is strongly characterised by shifts in relations (between actor groups, between infrastructures and the cities they serve and between technologies and contexts of application) and that these changing relations point us to arenas where intermediaries are operating. The following section provides empirical illustration of intermediaries and intermediation in the water sector from across Europe, interpreted in terms of the four key questions above. The paper concludes by summarising the main findings and demonstrating how the study of intermediaries can provide an empirical

focus to the often poorly substantiated study of shifting governance structures and processes today.

The research presented in this paper is based on an international research project on intermediary organisations in the water sector funded by the European Commission under the 5th Framework Programme.¹ It draws on a number of products from the project, in particular for the empirical examples of intermediaries. These include published papers (Marvin and Medd, 2004; Beveridge and Guy, 2005; Medd and Marvin, 2008), the final report of the EU project available online², the project website³ (designed as an online educational programme on intermediary awareness) and a selection of unpublished papers (Moss and Wissen, 2005; Beveridge and Guy, 2008; Medd and Marvin, 2008a). Examples of intermediaries from the energy sector are taken from other publications (e.g. Rohracher and Späth, 2008).

2. Intermediaries as boundary organisations

The term ‘intermediaries’ is used in a variety of literatures to describe organisations operating in-between other actor groups, but there exists no common conceptual understanding or even an agreed definition of what intermediaries are. In a literature review conducted in the framework of the above-mentioned EU project, Medd and Marvin (2008a) identified a wide range of organisations termed ‘intermediaries’, including ‘social intermediaries’ blurring the distinction between economy and society, ‘cultural intermediaries’ changing relations of mediation between culture and economy, ‘market intermediaries’ within the context of shifting relations between production and consumption, ‘labour intermediaries’ addressing labour market restructuring, ‘knowledge intermediaries’ within the new knowledge economy,

¹ RTD project “New intermediary services and the transformation of urban water supply and wastewater disposal systems in Europe”, see <http://www.irs-net.de/intermediaries/>. Last accessed on 04.06.2008.

² <http://www.irs-net.de/texte/intermediaries/DetailedReport.pdf>. Last accessed 04.06.2008.

³ <http://www.roark.dk/intermediaries/>. Last accessed 04.06.2008.

‘welfare intermediaries’ enabling joined-up working in social welfare and ‘planning intermediaries’ facilitating the coordination of public-private initiatives in town centre management.

As Medd and Marvin point out, the term is used to explore diverse types of actor. The intermediary can be an individual actor, as in Allen’s (2003) work on the floating support worker, or an organisation, such as a market research agency. The intermediary may be a network, as with van Lente et al’s (2003) example of the Californian Fuel Cell Partnership, or even a programme of work, as in the case of Iles and Yolles’ (2002) study of a technology translator training project. Clearly, intermediaries can take very different forms. As Gustedt (2000) has argued, intermediaries in the field of regional development can be distinguished not only by their organisational form but also in terms of their function (mediating, informing, connecting, coordinating etc.) and the stage of their development. What is distinctive to all of them, though, is the relational work that they perform and their positioning in-between other actors, or between actors and non-actors, such as a technology.

These characteristics resonate with the concept of ‘boundary institutions’ developed by Guston, Miller and others to describe “those social arrangements, networks, and institutions that increasingly mediate between the institutions of ‘science’ and the institutions of ‘politics’ [...]” (Miller 2001: 482; see Guston 2001). Miller argues that these relationships – particularly in international politics – are not static, but highly dynamic, requiring what he terms “hybrid management” to put “[the] elements together, take them apart, establish and maintain boundaries between different forms of life, and coordinate activities taking place in multiple domains” (Miller 2001: 487). Whilst the boundary organisations concept is limited to bridging two arenas (politics and science), van Lente et al (2003) are interested in intermediaries operating not just bi-laterally, but across multiple relations. This broader notion of ‘systemic intermediaries’ is useful for highlighting the complexity of many intermediaries’

relationships, but also the importance of certain intermediaries that are critically positioned to work across multiple forms of social organisation.

The need to distinguish between more and less important intermediaries is approached rather differently by Medd and Marvin (2004), who prefer to emphasise the intentionality behind intermediation. Their ‘strategic intermediaries’ are ones “deliberately positioned to act in between by bringing together and mediating between different interests” (Medd and Marvin, 2004: 84). This emphasis on deliberation is of particular relevance for addressing the governance dimensions to intermediation. Governance is implicit also in the term ‘intermediary space’, also coined by Medd and Marvin to describe “a context where the apparently firm boundaries between production and consumption can be questioned, broken down, reworked and actively reconstructed by intermediaries” (Medd and Marvin, 2004: 82). This notion of an ‘intermediary space’ resonates with Selle’s work on organisations working in the space “[...] between market, state and private households [...], a special ‘world’ in which the diverse values, ways of acting, and organising principles of the surrounding spheres are brought together” (Selle, 1994: 66, translation T.M.). We take up this idea of ‘intermediary space’ to analyse, in the following section, how the governance concept can contribute to our understanding of how intermediaries emerge out of changes to conventional modes of governance and, in turn, shape these changes themselves.

3. Governance perspectives on intermediation

Governance has become a fashionable concept for capturing the growing complexity of institutional structures, political processes and social relations involved in the collective pursuit of public, common or individual interests. The burgeoning literature on governance is a response to a perceived need to broaden the study of governing beyond the arenas of formal

government institutions to include more informal and less visible ways in which collective goals are advanced (Jessop, 2002; Mayntz, 2005; Benz, 2004; van Kersbergen and van Warden, 2004). Common to all research into governance, rather than government, is an interest in looking beyond purely top-down explanations of the exercise of power to broader forms of socio-political coordination between public and private actors which cut across the realms of state, market and civil society (Gualini, 2002).

Governance research suffers, however, from three major shortcomings. Firstly, there exists no universally accepted definition of what governance is: Rhodes alone has identified seven frequent uses of the term, ranging from New Public Management to governing through networks (1997). Secondly, a governance theory does not (yet) exist, only various sets of conceptual constructs, each staking out the parameter of a particular interpretation and application of the term. Thirdly, there is a dearth of empirical evidence to back up (or dispute) the various conceptualisations of governance. In drawing inspiration for our research on intermediaries we acknowledge these shortcomings but, at the same time, recognise the enormous potential which the vibrant debate on governance holds for structuring our thinking on the political nature of intermediary work. Here, we select four dimensions of the governance debate – presented as dualities – and demonstrate their relevance to intermediary research in each case.

a) New realities and new perspectives

Common to all governance research are two fundamental characteristics which distinguish it from past studies of government. On the one hand governance studies are interested in analysing *new realities* of governing. There is a general preoccupation with “new arrangements for partnership and collaboration between government organisations, business groups and community groups of various kinds” (Healey et al, 2002:11). This is based on the acknowledgement that we are experiencing a significant shift in the scope, scale and style of

collective action in pursuit of common and public interests. On the other hand governance studies are applying *new perspectives* to the collective pursuit of political interests. They (rather belatedly) recognise that the process of governing – in the past as well as today – is more complex than hitherto assumed. In particular, governance research rejects the clear conceptual division between the state, the market and civil society familiar to traditional policy analyses in favour of a more relational, fluid and contingent approach to political collective action (Mayntz, 2005).

This overarching interest of the governance literature in revealing both new realities and new perspectives of political collective action reflects powerfully our own interest in applying the concept of intermediaries to the social organisation of water and energy management. On the one hand we set out to identify and analyse what we understand to be an emergent phenomenon in the organisation of water and energy: the growing importance of actors operating across the traditional spheres of water and energy provision, regulation and consumption. Although not denying the existence of intermediation in these sectors in the past, we claim that the extent and importance of intermediaries represents a ‘new reality’ in the governance of socio-technical networks. On the other hand we are using the concept of intermediation as a heuristic device to stimulate a novel way of thinking about how water and energy services are organised, departing from more conventional models of a clear-cut division of responsibilities. Just as the governance concept leads us to consider less familiar processes and structures of collective action, so the notion of intermediaries encourages us to look beyond the provider-regulator-user triad when investigating the governance of infrastructure systems in transition.

b) Generic term or specific model?

Opinion in the literature is divided over whether governance is a generic term applying to all modes of collective action in pursuit of common goals or, rather, a distinct counter-model to

traditional forms of government (cf. Healey et al, 2002). Proponents of the former would subscribe to the broad definition of governance by the Commission on Global Governance as the sum of all ways in which individuals, public agencies and private organisations govern their common affairs in a continuous process of negotiation and cooperation (1995: 4). Here, the interest lies in using governance as a heuristic device to explore multiple interactions between the realms of hierarchy (state), the market and civil society (e.g. Healey et al, 2002: 110ff.; Mayntz, 2003: 72; Blatter, 2005: 121; Pierre, 2000). For others, governance refers solely to forms of networked political action beyond the traditional sphere of government (e.g. Rhodes, 1997; Fürst, 2003; Fürst, 2004; Héritier, 2002). The interest here lies in exploring how forms of ‘network governance’ can pursue collective goals more effectively than public agencies alone.

For the purpose of our study of intermediaries we embrace the broader, non-normative understanding of governance. Rather than focussing just on selected forms of ‘network governance’ (with or without state involvement) we are concerned with what Bob Jessop has aptly defined as “the resolution of (para-)political problems (in the sense of problems of collective goal-attainment or the realisation of collective purposes) in and through specific configurations of governmental (hierarchical) and extra-governmental (non-hierarchical) institutions, organisations and practices” (Jessop, 1995: 317). Intermediaries are interesting for the relational work they perform not simply between members of a network but more particularly across diverse arenas of collective action. What is important from a governance perspective is less the interactions within a network than “the way social networks weave in and out of the formal institutions of government and develop guidance mechanisms within themselves ...” (Healey, 1997: 205).

c) Product of necessity or design?

A further distinction in the literature revolves around whether new governance forms are a product of necessity or design. For some commentators governance is a direct product of structural changes to the global political economy. As the influence of international markets and business grows – it is argued – so the power of state authorities declines, resulting in a reconfiguration of power relations between public agencies, private companies and civil society, finding expression in new forms of governance (Jessop, 1995; Brenner, 1999). Others dispute the inevitability of this process, with its determinist undertones, and argue that governance is strongly shaped by recognition of the inadequacies of what Enrico Gualini calls “self-centred political-administrative patterns of agency” (2002: 32). Governance in this sense is, rather, a product of deliberation, to create multi-level and multi-actor forms of coordination better suited to policy development and delivery.

The issue of intentionality behind governance structures and processes is highly relevant to intermediary research, as we noted earlier when referring to ‘strategic intermediaries’.

Although strategic intermediary organisations are created deliberately to address a particular deficit or exploit a particular opportunity, we should not be blinded into assuming this is the norm. Some organisations assume intermediary functions only gradually, some perform intermediary roles different to those for which they were established whilst others are even unaware they are acting as intermediaries.

d) Beneficial or detrimental impact?

It follows from the above that opinion in the literature is divided over whether or not governance is inherently beneficial. Many proponents of new modes of ‘network governance’ see these as a valuable addition to the body politic or, more specifically, as a complement to hierarchical government, with the capacity to raise the effectiveness of processes of governing

and involving actively a wider range of actors. It is in this context that some commentators speak of “good governance” (Evans et al, 2005). By contrast, sceptics use the governance concept to highlight the increasing influence of commercial interests over state policy (John and Cole, 2000). They problematise in particular the lack of democratic accountability and the exclusivity and selectivity of many forms of governance in practice (Stoker, 2000). In this context, we need to consider instances of ‘governance failure’ as a parallel to market or state failure (Jessop, 1998).

Just as these more critical studies emphasise that new governance arrangements are not politically benign, we need to avoid pre-judgemental views of intermediaries as being independent arbiters. Medd and Marvin (2008: 282) stress that intermediaries are not neutral or arbitrary, but play a role in ordering and defining relationships. Their acts of intermediation are inherently political in the broad sense of involving the articulation and pursuit of particular goals between actors of diverse influence and capacity. We need to consider intermediaries, therefore, as political players in their own right pursuing a variety of interests like any other actor. Equally, we need to contemplate the potentially negative impacts of intermediaries, whether in failing to perform intermediary functions, in causing unintended negative effects or in using their position to prevent – rather than facilitate – exchange. Nor does being well-positioned and well-connected protect intermediaries from failure. With this understanding of intermediaries as both products and agents of shifting forms of governance we explore in the following section the contexts of their emergence in the water and energy sectors.

4. The shifting governance of socio-technical networks and the emergence of intermediaries

In the introduction to his edited volume ‘The Governance of Large Technical Systems’ Olivier Coutard argues that the governance concept is a valuable tool for unpacking the set of regulatory, policy and organisational changes currently affecting socio-technical networks (1999: 2). How, then, is the governance of socio-technical networks changing in Europe today and how are these shifts creating openings for intermediary organisations? Prior to answering these questions we need to reflect very briefly on the key characteristics of the current transformation of urban infrastructure systems in Europe (on the following Coutard, 1999; Guy et al, 2001; Graham and Marvin, 2001; Coutard et al., 2005). Although experiences vary considerably across Europe and between sectors, the literature identifies a number of generic trends familiar to a greater or lesser degree everywhere, as follows:

The *liberalisation* of European markets for electricity and gas services has created a more competitive business environment and raised the relative importance of efficiency and customer relations in utility strategies. The parallel (but distinct) trend towards the *privatisation* of utility companies or services has reduced the influence of public agencies as former owners. Both developments have led to the emergence of new market actors and – though for different reasons – greater consumer interest and involvement in service provision. Alongside this organisational fragmentation and actor diversification, however, a parallel process of *economic concentration* can be observed, marked by company mergers and the growing globalisation of energy and water markets. The *regulation* of utility services has also changed dramatically since the early 1990s. Whilst governments – national and local – have lost influence over direct service provision in cases of privatisation or commercialisation, the powers of regulatory authorities have increased in the field of environmental and climate protection and, to a lesser extent, consumer protection and market regulation. Here, the growing influence of the European Union has strengthened substantially the supranational dimension to the multi-level governance of infrastructure systems. Shifts in *consumption*

patterns, such as the dramatic drop in water consumption in transition countries since 1990 or the growing preference for electricity from renewable energy sources, have generated greater sensitivity to the needs of specific consumer groups and localities. This process is reinforced by growing *technological diversification*, characterised by the wider application of small-scale technologies, especially for electricity generation and heating but also for water re-use. This has resulted not only in the emergence of a wider range of technology developers, consultants and operators, but also in the increased involvement of users operating their own in-house infrastructures, such as solar heating or grey-water systems.

It should be emphasised that these trends differ hugely in intensity between countries, and between sectors, depending on a whole range of geographical, material, institutional and socio-economic factors (Voß and Bauknecht, 2007). They also do not represent a coherent development trajectory, but occur, rather, in parallel, and are in some cases even contradictory. Thus liberalisation often leads to economic concentration which reduces competition. Similarly, deregulation is generally accompanied by new forms of regulation (e.g. to ensure competition).

All of these components of the transformation of urban infrastructure systems have far-reaching implications for their governance. For the purpose of our study we identify four key governance challenges from the literature. Each of these relates to a re-ordering of relations between core components of infrastructure systems: a) between the state and utility companies, b) between service providers and users, c) between infrastructures and the localities they serve and d) between infrastructures and the natural environment. We will first elaborate these governance challenges and subsequently explore what relevance they have for the emergence of intermediary organisations.

Governance challenges

- a) State-utility relations: The waves of liberalisation (and privatisation) of utility services across Europe since the mid-1980s have generated considerable academic interest – especially amongst political economists – in issues of ownership and regulation. The governance challenge here is about how to pursue public sector interests under competitive market conditions (e.g. Newbery, 1999: 199-290 and 343-384 on the UK electricity and gas sectors; Finger and Allouche, 2002 on the water sector). Identifying a paradigm shift in modes of state intervention “from ownership to oversight” (Abbate, 1999: 115), these contributions are interested in exploring alternative ways in which public bodies, often no longer providing utility services themselves, can influence infrastructure development and service provision. For many commentators, however, these alternatives – such as fiscal incentives or collaborative planning – are insufficient to control the environmental, social and economic negative externalities associated with infrastructure systems (Coutard, 1999: 9; Rochlin, 2005). For instance, Gandy (1997: 342-4) uses the case of New York City to illustrate how the political-organisational reordering of water supply in the early 1990s undermined traditional “municipal managerialism” and replaced it with a fragmented form of governance, resulting in piecemeal, ad hoc responses to environmental problems.
- b) Provider-user relations: A second strand of research on infrastructure reconfiguration addresses how trends towards market competition, service differentiation and consumer engagement are changing the conventionally limited and largely one-directional relationship between the utility and the service user. Some commentators have challenged the widespread assumption that liberalisation brings more choice to consumers (Summerton, 2004). The potential benefits for consumers, it would appear, depend on their relative value to the utility, with strategically important users being “cherry-picked” for special services and low-value customers being subject to “social dumping” (Guy et al,

1999; cf. for Eastern Germany Wissen and Naumann, 2006, for England and Wales Page and Bakker, 2005). Other commentators argue for a more balanced appraisal of how modes of production and consumption influence one other and how this interaction is currently changing (Southerton et al, 2004; Trentmann, 2006). The governance challenge in this case is to respond to both the threats and the opportunities which this re-ordering of utility-user relations presents to issues of consumer protection and user empowerment. In this context we need to appreciate how utility-consumer relations are also being affected by changing patterns of resource consumption and new modes of self-provision (e.g. solar-powered electricity generation, re-use of water).

- c) Infrastructure-city relations: It is widely acknowledged that the development of a locality and its infrastructure systems are inextricably linked. However, only since the mid-1990s have significant steps been made to link urban studies and technology studies in researching the interdependencies of urban and infrastructure development (Hommels, 2005).⁴ What governance issues are at stake here is reflected in the much-cited comment by Susan Star: “Study a city and neglect its sewers and power supplies (as many have), and you miss essential aspects of distributional justice and planning power” (1999: 379). Infrastructure systems are both a product and a medium of the political economy of a locality (Kaika and Swyngedouw, 2000; Gandy, 2004). This is most prominently illustrated by the ‘splintering urbanism’ thesis developed by Stephen Graham and Simon Marvin (2001), who argue that new logics of urban and infrastructure politics are accentuating socio-spatial disparities in utility services (for a critique, Coutard, 2005; Coutard and Guy, 2008). At the same time scholars are keen to highlight new ways of shaping the city-infrastructure interface to beneficial effect, whether through the growing sensitivity of utilities towards the changing geographies of infrastructure systems (Guy et

⁴ A notable exception is the earlier work by urban historians and historians of technology on the development of Large Technical Systems (e.g. Hughes, 1983; Tarr and Dupuy, 1988).

al, 1996), ways of improving linkage between infrastructure planning and urban development (Ennis, 2003) or a better understanding of how infrastructure transformation is contextualised locally (Guy et al, 2001).

- d) Infrastructure-environment relations: The central importance of infrastructure systems for improving the natural environment and contributing to sustainable development is a fourth strand of debate on the governance of socio-technical systems in transition (Coutard et al., 2005). From a political ecology perspective the current renewal, modernisation and (selective) extension of infrastructure systems in Europe present a window of opportunity for re-thinking radically how infrastructures are planned and what services are required so as to take greater account of today's policy objectives for environmental and climate protection (Loske and Schaeffer, 2005; Coutard et al, 2005; Pehnt et al, 2006). The governance challenge here is to identify institutional frameworks and modes of interaction which encourage more sustainable use of natural resources and energy through technological innovation and altered practices (Rohracher, 2002; Jamison and Rohracher, 2002). Rohracher (2002) argues, for instance, that strategies for sustainable socio-technical systems require better coordination between actors on the supply side and greater enrolment of consumers in innovation processes.

Intermediaries as expressions of governance change

From this broad-brush survey of the shifting governance of socio-technical networks we can draw a number of conclusions pertinent to intermediaries and intermediation. Politically, the four governance challenges identified above direct our research on intermediaries towards arenas of collective action that are of particular significance to the future of socio-technical networks. Structurally, the governance challenges all revolve around the re-ordering of relations – whether between state and private sectors, between providers and users, between infrastructures and localities and between infrastructure and resource use. Given the relational

nature of intermediation these four challenges are indicative of where important intermediary organisations and functions are likely to be found.

Taking the first challenge of shifting state-utility relations, we might expect intermediaries to emerge as products of market restructuring, as a response to new modes of regulation or to fill institutional gaps resulting from reforms. As power relations between service regulators and providers shift and as new policy agendas emerge, certain organisations are positioning and presenting themselves as intermediaries with the ability to exploit opportunities which these changes are bringing. Marvin and Medd see a direct link between the unbundling of integrated infrastructure networks and their selective rebundling by intermediaries (2004: 85). An illustration of this is the role of regional energy agencies in Austria in building up and stabilising new relations between farmers, manufacturers and consumers around biomass-based systems for heating and power generation in rural communities (Rohracher and Späth, 2008). Similarly, changes to provider-user relations and growing public awareness of infrastructure systems are stimulating the emergence of intermediary organisations capable of liaising between utilities and consumers – whether household or commercial. These can range from advisory groups and information campaigns on resource use or pollution to training and educational programmes for targetted consumer groups. As the third and fourth governance challenges demonstrate, the reordering of relations in socio-technical networks does not relate solely to those between (human) actors. Research needs to explore intermediation at the interface between infrastructure and urban development as well as between new technologies and sustainable forms of production/consumption. Examples could include, in the first case, organisations interconnecting discourses on processes of urban restructuring and infrastructure reform and, in the second, intermediaries seeking to embed technologies in particular social contexts of application. In the following section we illustrate these

intermediary activities with a range of examples from the water sector, interpreting these in terms of the core governance issues running through his paper.

5. Intermediaries and the governance of water: empirical illustrations

For the purpose of the EU-funded research on which this paper is based we defined intermediaries as “organisations that act in-between the traditional relationships between utilities, regulators and consumers to enable the uptake of new technologies and changed social practices within the production-consumption nexus with the capacity to reshape the intensity, timing and level of water use and wastewater production”.⁵ In exploring empirically the work intermediaries perform in the water sector we structure our analysis around the four guiding questions from the introduction. These relate to a) contexts of emergence of intermediaries working around water issues, b) the relational nature of this intermediary work, c) the interests which intermediaries advance in working with water and d) the impacts they have on water governance.

a) Contexts of intermediary emergence

Where, and under what conditions, are intermediaries to be found? Referring back to our analysis of the shifting governance of socio-technical networks, the task here is to explore how market restructuring, commercialisation trends and regulatory pressures are creating openings for new intermediary functions and how intermediary organisations are developing these openings further (on the following, Moss and Wissen, 2005).⁶ One such example is the Berlin Centre of Competence for Water (KWB), an intermediary network created as part of

⁵ http://www.roark.dk/intermediaries/1_2_What_are_i.htm. Last accessed on 04.06.2008.

⁶ Details on the intermediaries cited can be found under <http://www.roark.dk/intermediaries/>. Last accessed 02.06.2008.

the privatisation package of the city's water utility in 1999.⁷ Comprising representatives from the water utility, local research organisations, the city-state government and associated businesses, the KWB coordinates and funds water research and technological development in the Berlin region. Institutional restructuring in post-socialist states has stimulated the emergence of many intermediaries, often to exploit new market opportunities or to fill voids left between the dismantling of socialist structures and the creation of new state bodies. This was the case with the Bulgarian National Association on Water Quality (BNAWQ), a civil society organisation established in 1994 against the background of severe environmental problems and institutional weakness in the water sector.⁸ Beyond conventional NGO services in education and awareness-raising, BNAWQ has taken on many tasks performed elsewhere by public authorities or utilities, such as training operators of sewage treatment plant and leading public debates on adaptation to European norms and standards. EU policy itself has been a further driving force behind the emergence of intermediaries in the water sector. The EU Urban Wastewater Directive was, for example, instrumental behind the launch of the project CLEVER (Coastal Liquid Effluent Volume Reduction) in the North East of England. Between 1999 and 2001 CLEVER provided SMEs in the region with knowledge on how to reduce water consumption and wastewater production, thereby meeting EU standards whilst at the same time becoming more competitive and cost-effective.

b) The relational work of intermediaries

How do intermediary organisations work? This second question targets the relational nature of intermediary activity. The task is to explain how intermediaries position themselves between different entities and what characterises intermediation for water. Governance studies often target the focal points, or nodes, of actor relations (cf. Healey, 1997: 58). Here, we illustrate the nodal functions which intermediaries perform, not just in the sense of developing

⁷ See www.kompetenz-wasser.de. Last accessed on 11.06.2008.

⁸ See www.bnawq.org. Last accessed on 11.06.2008.

links between various organisations but, more fundamentally, in creating arenas for new ways of thinking about and dealing with water. We draw on the four governance challenges of socio-technical networks in transition elaborated above to help identify the principal arenas of intermediary work.

The first two governance challenges focus attention on the relational work of intermediaries operating between different actor groups, specifically between providers, regulators and consumers or users. Here there is an uncanny and telling resemblance to the ‘conceptual trinity’ of market, state and civil society in governance studies. One example is the organisation Sustainable Water Environment in Lancashire (SWEL), which liaises between the UK’s Environment Agency (EA) and SMEs in the region over solutions for water pollution problems. SWEL has proved highly successful firstly by maintaining strict confidentiality in its dealings with each party and secondly by “translating” EA policy to local businesses in ways that reflect their interests (Medd and Marvin, 2008: 293-295). Another example is the French organisation Service Public 2000, set up in 1996 by the French Mayors Association (AMF) and the National Federation for the Management of Local Public Utilities (FNCCR) to advise local authorities on how to negotiate contracts with private water companies.⁹ The function of this intermediary is to help offset the strongly asymmetrical relationship between powerful water companies and the small communes they serve. Many of the intermediaries studied operate across different levels of social organisation, from the household to the region and beyond. This is the distinguishing intermediary feature of the Mersey Basin Campaign (MBC) in the North West of England (Medd and Marvin 2008: 289-293). The MBC is a broad partnership of government, business and community organisations of the Mersey basin which has proved successful in accessing different forms of funding and enrolling actors from local to regional levels in the common interest of improving the environmental quality of the River Mersey.

⁹ See www.sp2000.asso.fr. Last accessed on 11.06.2008.

The third and fourth governance challenges – on relations between infrastructure, the city and the environment – direct our research to forms of intermediation involving non-human entities. The close interdependence of technologies, infrastructure systems and spatial development is exploited by several of the intermediaries studied. One of these is the company BULPLAN, based in Sofia, which supports local authorities, developers and utilities with studies and advice on how to plan urban development in ways which take adequate consideration of the limited water resources of the Sofia region, the investment needs of the infrastructure networks and the effects of management restructuring to water services (Moss and Wissen, 2005). The British company Glassarc works, rather, at the interface between technologies and buildings.¹⁰ Using its good connections to suppliers of water conservation technologies, Glassarc encourages key decision makers on construction projects to consider applying these technologies.

¹⁰ See www.glassarc.com. Last accessed on 11.06.2008.

c) Intermediary interests

What – and whose – interests do intermediaries promote? Given that intermediation is often associated with neutrality, this third question is not at all trivial. Our analysis of the governance concept cautions us to avoid assuming either that intermediaries are neutral or that intermediation is necessarily benign. The ways in which intermediaries work in-between different actor groups, policy fields or scales of action can, of course, be highly advantageous to the parties concerned. Their potential to reap collective benefits through acts of intermediation is, after all, their defining asset. However, this should not mislead us into overlooking the fact that intermediaries, like all actors, are motivated by their own interests, whether political, commercial, social or organisational. The commercial intermediaries mentioned above are clearly all driven – at least in part – by the need to make a profit and compete successfully in the marketplace. Intermediary NGOs are also interest-driven. A case in point is the Copenhagen Energy and Environmental Office (KMEK), a non-profit consultancy with a strongly ecological agenda which offers advice, initiates innovative projects, provides training programmes and organises exhibition to promote sustainable development, including water saving and clean water agendas.¹¹

d) Intermediary impacts

What difference do intermediaries make? This fourth question addresses the impacts intermediaries have, such as in saving water and minimising water pollution. The existence of a large number of diverse organisations performing a variety of intermediary functions suggests that their influence on water management – collectively, if not individually – may be considerable. Many of the intermediaries studied are undeniably influential in promoting more sustainable forms of water use. Notable examples from the UK alone include Envirolink North West, a non-profit organisation helping environmental technology suppliers to find and

¹¹ See www.kmek.dk. Last accessed on 11.06.2008.

win new business¹², the North East Centre for Environmental Science and Industry, an environmental support service for SMEs based at Durham University¹³, and Chemicals North West, an industry-led body formed to improve the competitiveness of the region's chemical industry by reducing environmental damage.¹⁴

It is, however, hard to substantiate the assertion that intermediaries are having a significant impact on water use in Europe, for a number of reasons. Firstly, intermediary activity is generally not easily quantified. Few intermediaries possess reliable data on the impacts they have, for instance, on water use. Exceptions include the Berlin consultancy ucb, which claims a reduction in water use of 20% for all the companies participating in its 'Ökoprofit' project, and the Lancashire Business Environment Association, which increased water savings in its partner SMEs from ca. 16,000 litres in 2002/3 to ca. 205,000 litres in 2003/4 (Moss and Wissen, 2005). Secondly, the prime impact of intermediaries is not very tangible, relating primarily to changing attitudes, building trust, networking stakeholders, influencing policy priorities or bridging discourses. The influence of intermediaries on resource use is, therefore, mostly indirect, for instance creating conditions favourable for technology take-up rather than installing or using the technology themselves. A good example is the environmental consultancy CookPrior in the North East of England which specialises in matching innovative technical solutions to specific business contexts of wastewater management by means of close interaction and "translation" between technology providers and users (Beveridge and Guy, 2005; 2008). Thirdly, most of the intermediaries identified are relatively small organisations, which individually may not be very influential but which collectively, alongside other similar organisations, may well be. We should, finally, be aware of instances where intermediaries not only act counter to public policy but also where intermediaries fail to achieve their own objectives, for whatever reason.

¹² See www.envirolinknorthwest.co.uk. Last accessed on 11.06.2008.

¹³ See www.dur.ac.uk/NECESI. Last accessed on 11.06.2008.

¹⁴ See www.chemicalsnorthwest.org.uk. Last accessed on 11.06.2008.

6. Conclusion

This paper has investigated the emergence and work of intermediary organisations as a window on the shifting governance of socio-technical networks in Europe today. This has involved a) exploring definitions and applications of the term ‘intermediary’, b) drawing on the governance literature to provide a conceptual focus on the political nature of intermediary work, c) reviewing the literature on the current transformation of socio-technical systems to identify shifts in their governance and the openings for intermediaries which this is creating and d) illustrating the emergence, operation, interests and impacts of intermediaries with examples drawn from research focussing on water and wastewater services.

The governance concept – although itself contested – proved highly valuable in framing the political dimensions to intermediation, thereby providing some welcome focus to the disparate understandings of the term ‘intermediaries’ in the literature. The overarching interest of governance studies in revealing both new realities and new perspectives of collective action was shown to resonate strongly with our own interest in exploring intermediaries as both product and medium of shifts in the governance of socio-technical systems. On the one hand the governance perspective helped identify and explain the emergent phenomenon of intermediaries as a ‘new reality’ of actors operating across the traditional spheres of water and energy provision, regulation and consumption. On the other hand, by shedding a ‘new perspective’ on modes of governance, the concept proved useful as a heuristic device, challenging conventional models of how water and energy services are organised. Just as the governance concept leads us to consider less familiar processes and structures of collective action, so the notion of intermediaries encourages us to look beyond the provider-regulator-user triad when investigating the governance of infrastructure systems in transition.

Conversely, the empirical findings of our research – illustrated briefly in this paper – indicate how the study of intermediaries can help substantiate our understanding of governance. If governance is about looking beyond simple, functional distinctions between the state, the market and civil society, then the study of intermediaries is instrumental in revealing what happens at the more open and blurred interfaces between the public and the private, the regulator and the regulated. As traditional boundaries between actor groups are being eroded or redefined, intermediaries would appear to play an important role in communicating across cultures of compliance (state), of competition (market) and of collaboration (civil society) (cf. Healey et al, 2002). The boundary work of intermediaries relates not solely to the “conceptual trinity of market-state-civil society” (Jessop, 1995: 310), but also to other dimensions, as our empirical examples have illustrated. Governance settings are today increasingly trans-scalar, cross-sectoral and multi-dimensional (Gualini, 2002; Blatter, 2005). This means that, to be effective, key actors need to operate across different scales of governance (e.g. EU, national, regional, local), different policy fields (e.g. water, energy, regional development, research) and different planes of communication (e.g. informational, persuasive, receptive). The study of intermediaries at these various interfaces, we conclude, can deliver important insights into the nature of this boundary work so crucial to governance studies.

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